LATE REVISIONS #2
BEAR VALLEY WATER DISTRICT
WASTEWATER TREATMENT FACILITY
ALPINE COUNTY
NPDES Permit , Response to Comments, and Buff Sheet
Regional Water Quality Control Board, Central Valley Region
Board Meeting – 4 August 2011
ITEM # 7

Changes to Proposed NPDES Permit Renewal

1. **NPDES Permit.** Section IV.A.1.a. Final Effluent Limitations. Modify Table 6 as shown in underline/strikeout format below:

Table 6. Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	1.0	--	2.5	--	--
Conventional Pollutants						
~~pH~~	~~Standard Units~~	~~--~~	~~--~~	~~--~~	~~6.5~~	~~8.5~~
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	30	40	60	--	--
	lbs/day[1]	250	330	1,250	--	--
Total Suspended Solids	mg/L	30	40	60	--	--
	lbs/day[1]	250	330	1,250	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	0.56	--	1.1	--	--
Lead, Total Recoverable	µg/L	0.082	--	0.16	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	71	--	143	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	--	--
	lbs/day[1]	9.2	--	44	--	--
Settleable Solids	ml/L	0.1	--	0.2	--	--

[1] Average monthly and average weekly mass-based effluent limitations are based on a permitted average monthly flow of 1.0 MGD. Maximum daily mass-based effluent limitations are based on a permitted maximum daily flow of 2.5 MGD.

2. **NPDES Permit.** Section VI.C.1.f. and g. Special Provisions. Modify section f and add section g as shown in underline/strikeout format below:

f. ~~pH and~~ Ammonia Effluent Limits. The ammonia effluent limitations are based on criteria calculated on a reasonable worst case effluent pH of 8.5 standard units. If the Discharger ~~performs a study demonstrating there is no reasonable potential for the discharge to cause or contribute to an exceedance of the Basin Plan water quality objectives for pH, or~~ adequately demonstrates that the effluent

pH is consistently ~~a~~ lower than 8.5.~~instantaneous maximum pH effluent limitation is protective~~ and should be used to establish the effluent limitations for ammonia that are protective of the beneficial uses of the receiving water, this Order may be reopened to modify the effluent limitations for ~~pH and/or~~ ammonia.

g. pH. This Order requires the Discharger to conduct a study to determine the naturally occurring background pH of Bloods Creek during the period when a discharge is allowed by this Order and to evaluate and assess all potential impacts such discharges may have on Bloods Creek. Based on the results of this study this Order may be reopened to establish water quality-based effluent limitations for pH if required.

3. **NPDES Permit.** Section VI.C.2.e. Special Provisions. Add section e as shown in underline format below:

e. pH Study. The Discharger shall conduct a study of the pH of Bloods Creek to evaluate the natural background pH to determine if the pH water quality objectives contained in the Basin Plan are applicable. In addition, the study shall adequately characterize the effluent pH and evaluate the estimated impact the discharge will have on the receiving water pH under reasonable worst-case conditions. The Discharger shall conduct the study in accordance with the following schedule:

Task	Compliance Date
i. Submit pH Study Workplan/Schedule	1 November 2011
ii. Complete pH Study	1 October 2012
iii. Submit Technical Report summarizing results of the pH Study	30 November 2012

4. **Fact Sheet.** Section IV.B.2.c. Applicable Technology-Based Effluent Limitations. Modify section c as shown in underline format below:

c. pH. The secondary treatment regulations at 40 CFR Part 133 also require that effluent pH be maintained between 6.0 and 9.0 standard units. Effluent limitations for pH are not included in this Order because the pH of the discharge to the polishing/storage reservoir is regulated by WDR Order No. 5-01-208 and this satisfies the secondary treatment regulations for pH.

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	1.0	--	2.5	--	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	40	60	--	--
	lbs/day[1]	250	330	1,250	--	--
	% Removal	85	--	--	--	--
pH[2]	standard units	--	--	--	6.0	9.0
Total Suspended Solids	mg/L	30	40	60	--	--
	lbs/day[1]	250	330	1,250	--	--
	% Removal	85	--	--	--	--

[1] Mass limits are based on 1.0 MGD for monthly and weekly average effluent limitations and 2.5 MGD for maximum daily effluent limitations.

[2] The pH limitations are included in WDR Order No. 5-01-208.

5. **Fact Sheet.** Section IV.C.3.b.ii. Constituents with No Reasonable Potential. Add section ii for pH as shown in underline format below:

ii. pH

(a) WQO. The Basin Plan includes a water quality objective for surfaces waters (except for Goose Lake) that states the *"…pH shall not be depressed below 6.5 nor raised above 8.5*." Bloods Creek has naturally low pH that is often less than the lower objective in the Basin Plan. The Basin Plan's Controllable Factors Policy states, "*Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.*" Chapter IV of the Basin Plan further states, "*However, the water quality objectives do not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective."* Therefore, the pH objective of 6.5 may not be applicable in Bloods Creek. Additional information is needed to fully evaluate the applicable water quality objective for pH for this receiving water.

(b) RPA Results. Receiving water monitoring during the 2010 discharge season indicated that the receiving water appears to have naturally low pH values, ranging between 5.18 and 7.0. The Discharger began accelerated monitoring during the 2010 discharge season to characterize the water quality of the storage/polishing reservoir for pH. The initial monitoring results for pH in the storage/polishing reservoir indicate high variability, ranging from 4.85 to 10.3. The Discharger attributes these fluctuations to

the low alkalinity of the water in the reservoir due to rainfall, snowmelt, and infiltration and inflow (I/I) that allows for substantial increases in pH with comparatively little algae growth and photosynthesis, and the natural acidity of the geologic features in concert with depressed pH resulting from acidic precipitation. The Discharger has reported use of a new pH meter for low ionic strength water, which is more appropriate for the wastewater and receiving water monitoring at Bear Valley. Based on a limited amount of data, the Discharger has not seen the high variability in the pH data using the new pH meter, especially the high values they measured using the old meter.

Although the effluent may exceed the Basin Plan's water quality objectives for pH, due to the large dilution it is likely that the discharge has little impact on the receiving water pH. Furthermore, based on the Basin Plan's Controllable Factors Policy, the lower pH objective in the Basin Plan may not be applicable for Bloods Creek. Also the Basin Plan does not require an objective to improve naturally occurring pH concentration. Therefore, additional information is needed to make a finding of reasonable potential for this discharge. This Order includes a pH study to evaluate the applicable water quality objectives for the receiving water and to adequately characterize the discharge. In addition, this Order includes a receiving water limitation for pH based on the current water quality objective until it is demonstrated through the study that such an objective is not applicable based on natural conditions, and requires continuous effluent pH monitoring and weekly receiving water pH monitoring when discharges occur to Bloods Creek to ensure the discharge does not cause or contribute to an exceedance of the current water quality objectives for pH. A reopener provision is also included that allows the permit to be opened to establish water quality-based effluent limits for pH based on new information.

6. **Fact Sheet.** Section IV.C.3.c. Constituents with Reasonable Potential. Modify the section as shown in strikeout format below:

   c. Constituents with Reasonable Potential. The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, BOD_5, chlorine residual, copper, iron, manganese, pathogens, ~~pH,~~ settleable solids, and TSS. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

7. **Fact Sheet.** Section IV.C.3.c.ix. Constituents with Reasonable Potential. Delete section ix for pH, and renumber remain sections:

8. **Fact Sheet.** Table F-12. Summary of Final Effluent Limitations. Remove pH effluent limits as shown in underline format below:

Table F-12. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
~~pH~~	~~Standard Units~~	~~--~~	~~--~~	~~--~~	~~6.5~~	~~8.5~~	~~BP~~

9. **Fact Sheet.** Section IV.D.2. Averaging Periods for Effluent Limitations. Modify the first paragraph of the section as shown in underline/strikeout format below:

> 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of AWELs for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order utilizes MDELs in lieu of AWELs for aluminum, ammonia, copper, and lead as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for chlorine residual, and total coliform organisms~~, and pH~~, AWELs have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3. of this Fact Sheet.

10. **Fact Sheet.** Section IV.D.3. Satisfaction of Anti-Backsliding Requirements. Add new paragraph to the end of the section as shown in underline format below:

> Order No. R5-2005-0139 established WQBELs for pH such that the discharge shall not have a pH less than 6.5 nor greater than 8.5. As discussed in Section IV.C.3.b.ii, due to the large dilution, it is likely the discharge is not impacting the pH of Bloods Creek. In addition, the pH in Bloods Creek appears to be naturally low for the same reasons the pH is low in the effluent polishing/storage reservoir and that the naturally occurring conditions of Bloods Creek are likely outside the Basin Plan's pH objectives. Pursuant to CWA section 402(o)(2), the additional information that the pH objective in the Basin

Plan may not be applicable to Bloods Creek was provided to the Central Valley Water Board since issuance of the previous permit and would have likely justified the less stringent pH effluent limits at the time of permit issuance. Furthermore, CWA section 402(o)(3) is satisfied in this case when the Basin Plan's pH objectives may not be applicable. In particular, pursuant to the Basin Plan's Controllable Factors Policy, the Basin Plan's pH objectives may not applicable for this receiving water, and the Basin Plan does not require an objective to improve naturally occurring conditions. Furthermore, the Basin Plan's Policy for Application of Water Quality Objectives states that "In cases where the natural background concentration of a particular constituent exceeds the applicable water quality objective, the natural background concentration will be considered to comply with the objective." Additional information is needed to adequately characterize the discharge and receiving water pH in order conduct a reasonable potential analysis. Removal of the WQBELs in the previous permit is in accordance with CWA sections 303(d)(4) and 402(o), which allow for the removal of WQBELs for attainment waters where antidegradation requirements are satisfied. Removal of the WQBELs is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. The removal of the pH effluent limits does not allow for an increase in mass of pollutants. In fact, removal of the limits reduces addition of chemicals to unnecessarily raise the pH of the effluent to meet the previous pH limits. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements.

11. **Fact Sheet.** Section VII.B.1. Reopener Provisions. Modify section d. pH and Ammonia and add section e. pH as shown in underline/strikeout format below:

    d. ~~pH and~~ Ammonia Effluent Limits. The ammonia effluent limitations are based on criteria calculated on a reasonable worst case effluent pH of 8.5 standard units. ~~Reasonable potential for pH was determined based on excursions of the Basin Plan water quality objectives for pH in the storage/polishing pond. However, due to the large dilution in the receiving water, it is likely the discharge has little effect on the pH of the receiving water and may not need water quality-based effluent limitations. If the Discharger performs a study demonstrating there is no reasonable potential for the discharge to cause or contribute to an exceedance of the Basin Plan water quality objectives for pH in Bloods Creek, this reopener provision allows the permit to be opened to modify or remove the effluent limits for pH. In addition, the Discharger requested a lower instantaneous maximum pH effluent limit in order to have a less stringent ammonia effluent limits.~~ If the Discharger provides sufficient information demonstrating the effluent pH is consistently lower than 8.5 and should be used to establish effluent limits for ammonia that are protective of the beneficial uses of the receiving water, ~~Facility can comply with the lower instantaneous maximum pH effluent limit,~~ this reopener provision allows the permit to be opened to modify the effluent limits for ammonia.

    e. pH. This Order requires the Discharger to conduct a study to determine the naturally occurring background pH of Bloods Creek during the period when a discharge is allowed by this Order and to evaluate and assess all potential

impacts such discharges may have on Bloods Creek. Based on the results of this study this Order may be reopened to establish water quality-based effluent limitations for pH if required.

12. **Fact Sheet.** Section VII.B.2.e. Special Studies and Additional Monitoring Requirements. Add section e. pH Study as shown in underline format below:

e. pH Study. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that states the *"…pH shall not be depressed below 6.5 nor raised above 8.5*." Bloods Creek has naturally low pH that is often less than the lower objective in the Basin Plan. The Basin Plan's Controllable Factors Policy states, "*Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.*" Further, the Basin Plan does not require an objective to improve naturally occurring pH concentration. Therefore, the pH objective of 6.5 may not be applicable in Bloods Creek. Additional information is needed to fully evaluate the applicable water quality objective for pH for this discharge. Furthermore, the Discharger has reported use of a new pH meter for low ionic strength water, which is more appropriate for the wastewater and receiving water monitoring at Bear Valley. Based on limited data, the Discharger has not seen the high variability in the pH data using the new pH meter, especially the high values in the effluent polishing/storage reservoir they measured using the old meter. Additional information is needed to adequately characterize the discharge and receiving water pH in order to conduct a reasonable potential analysis.

The Discharger shall conduct a study of the pH of Bloods Creek to evaluate the natural background pH to determine if the pH water quality objectives contained in the Basin Plan are applicable. In addition, the study shall adequately characterize the effluent pH and evaluate the estimated impact the discharge will have on the receiving water pH under reasonable worst-case conditions.

Changes to Response to Comments

13. **CSPA Comment No. 3. Effluent Limitations for pH.** Modify Response as shown in underline/strikeout format below:

RESPONSE: CSPA points out that an equation derived for conservative constituents was incorrectly used for pH in the proposed Order and that water quality-based effluent limits are required for pH. Central Valley Water Board staff concurs that equation used is not applicable to pH,~~.~~ however, staff does not concur that ~~W~~water quality-based effluent limits are required for pH at this time. ~~have been added to the proposed Order, based on the Basin Plan's water quality objective for pH.~~ Due to the large dilution, it is likely the discharge is not impacting the pH of Bloods Creek. In addition, the pH in Bloods Creek appears to be naturally low for the same reasons the pH is low in the

effluent polishing/storage reservoir. The Basin Plan's Controllable Factors Policy states, "*Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.*" Further, the Basin Plan does not require an objective to improve naturally occurring pH concentration. Therefore, the pH objective of 6.5 may not be applicable in Bloods Creek. Additional information is needed to fully evaluate the applicable water quality objective for pH for this receiving water. Furthermore, the effluent pH must be adequately characterized. The Discharger has reported use of a new pH meter for low ionic strength water, which is more appropriate for the wastewater and receiving water monitoring at Bear Valley. Based on a limited amount of data, the Discharger has not seen the high variability in the pH data using the new pH meter, especially the high values in the effluent polishing/storage reservoir they measured using the old meter. Additional information is needed to adequately characterize the discharge and receiving water pH in order conduct a reasonable potential analysis.

A late revision is proposed to add a provision requiring the Discharger conduct a study of the pH of Bloods Creek to evaluate the natural background pH and determine if the pH water quality objectives contained in the Basin Plan are applicable. In addition, the study must adequately characterize the effluent pH and evaluate the estimated impact the discharge will have on the receiving water pH under reasonable worst-case conditions. ~~Therefore,~~ The late revision also includes a reopener provision ~~has been added~~ to allow the ~~removal~~ addition of ~~the~~ WQBELs for pH, should the new information from the ~~Discharger conduct a~~ study ~~that adequately~~ demonstrate~~s~~ the discharge ~~causes no~~ has reasonable ~~threat~~ potential to cause or contribute to an exceedance of the Basin Plan water quality objectives for pH in Bloods Creek.

Changes to Buff Sheet

14. **Issues Section: CSPA Comment Regarding pH.** Modify as shown in underline/strikeout format below:

Effluent Limitations for pH. CSPA comments that the proposed permit fails to include an effluent limitation for pH; pH is not a conservative constituent and use of the effluent limitation equation for conservative constituents is not appropriate. CSPA additionally comments that the Central Valley Water Board has not conducted any mixing zone analysis for pH. Staff agrees that the equation used is not applicable to pH, however, staff does not agree that water quality-based effluent limits (WQBELs) are required for pH at this time. ~~are needed and have been added to the proposed permit, based on the Basin Plan's water quality objective for pH.~~ Due to the large dilution, it is likely the discharge is not impacting the pH of Bloods Creek. Also, the pH in Bloods Creek appears to be naturally low for the same reasons the pH is low in the effluent polishing/storage reservoir. Pursuant to the Basin Plan's Controllable Factors Policy, the Basin Plan's pH objectives may not be applicable for this receiving water, and the Basin Plan does not require an objective to improve naturally occurring pH conditions. Additional information is needed to adequately characterize the discharge and receiving water pH in order conduct a reasonable potential analysis.

A late revision is proposed that adds a provision requiring the Discharger conduct a study of the pH of Bloods Creek to evaluate the natural background pH and determine if the pH water quality objectives contained in the Basin Plan are applicable. In addition, the study must adequately characterize the effluent pH and evaluate the estimated impact the discharge will have on the receiving water pH under reasonable worst-case conditions. The late revision also includes ~~A~~a reopener provision ~~has been added~~ to allow the ~~removal~~ addition of ~~the~~ WQBELs for pH, should the new information from the ~~Discharger conduct a~~ study ~~that adequately~~ demonstrate~~s~~ the discharge ~~causes no~~ has reasonable ~~threat~~ potential ~~to excee the Basin Plan water quality objectives~~ for pH ~~in Bloods Creek~~.